

DOCKET NO. 2017-2-E

CCL AND SACE'S PROPOSED ORDER

This matter comes before the Public Service Commission of South Carolina (“Commission”) on the annual review of the fuel purchasing practices and policies of South Carolina Electric & Gas Company (“SCE&G” or “Company”) and for a determination as to whether any adjustment in the fuel cost recovery factors is necessary and reasonable. Pursuant to the South Carolina Distributed Energy Resources Program Act (“Act 236”) and its revisions to S.C. Code Ann. § 58-27-865, the Company also seeks approval in this proceeding to recover costs incurred in providing distributed energy resource (“DER”) programs. The Company further seeks approval for its (1) current avoided cost rates and methodology under the Public Utility Regulatory Policies Act of 1978¹ (“PURPA”), (2) PR-1 and PR-2 avoided cost tariffs updates, and (3) 2017 annual update to calculations under the NEM Methodology approved in Commission Order No. 2015-194.

¹ Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in scattered sections of 15, 16, 42, and 43 U.S.C.A.) (PURPA).

II. JURISDICTION OF THE COMMISSION

S.C. Code Ann. § 58-3-140(A) vests the Commission with the “power and jurisdiction to supervise and regulate the rates and service of every public utility in this State...” Every rate “made, demanded or received by any electrical utility ... shall be just and reasonable.” S.C. Code Ann. § 58-27-810 (Supp. 2015).

A. Fuel Cost Recovery under S.C. Code Ann. § 58-27-865

The procedure followed by the Commission in this proceeding is set forth in S.C. Code Ann. § 58-27-865. Specifically, S.C. Code Ann. § 58-27-865(B) states in pertinent part that, “[u]pon conducting public hearings in accordance with law, the [C]ommission shall direct each company to place in effect in its base rate an amount designated to recover, during the succeeding twelve months, the fuel costs determined by the [C]ommission to be appropriate for that period, adjusted for the over-recovery or under-recovery from the preceding twelve-month period.” The period under review in this Docket is January 1, 2016, through December 31, 2016 (“Review Period”).

B. Recovery of Incremental and Avoided Costs of DER Programs under S.C. Code Ann. § 58-27-865

In addition to fuel costs, S.C. Code Ann. § 58-27-865 further provides for review and recovery of “incremental and avoided costs of distributed energy resource programs and net metering as authorized and approved under Chapters 39 and 40, Title 58[, which] shall be allocated and recovered from customers under a separate distributed energy component of the overall fuel factor that shall be allocated and recovered based on the same method that is used by the utility to allocate and recover variable environmental costs.” S.C. Code Ann. § 58-27-865(A)(1) (Supp. 2015). Incremental DER program costs are “all reasonable and prudent costs incurred by an electrical utility to implement a

distributed energy resource program pursuant to Section 58-39-130 of Chapter 39, the S.C. Distributed Energy Resource Act.” Recoverable incremental costs are capped in S.C. Code Ann. § 58-39-150 “[f]or the protection of consumers and to ensure that the cost of DER programs do not exceed a reasonable threshold.”

The DER incremental program costs include reasonable and prudent costs related to net energy metering (“NEM”) and the Methodology for valuing distributed generation NEM resources approved in Commission Order 2015-194. Pursuant to the NEM Settlement Agreement approved previously by this Commission in Order No. 2015-194, Docket No. 2014-246-E, the Company shall compute and update annually the “costs and benefits of net metering and the required amount of the DER NEM Incentive” coincident in time with the Utility’s filing under the fuel clause. Order 2015-194 at p. 22, para. (g).

The NEM Methodology approved in Order No. 2015-194 included the following eleven components:

- +/- Avoided Energy
- +/- Energy Losses/Line Losses
- +/- Avoided Capacity
- +/- Ancillary Services
- +/- T&D Capacity
- +/- Avoided Criteria Pollutants
- +/- Avoided CO₂ Emissions Cost
- +/- Fuel Hedge
- +/- Utility Integration & Interconnection Costs
- +/- Utility Administration Costs
- +/- Environmental Costs
- = Total Value of NEM Distributed Energy Resource

Each component in the methodology is accompanied by a description and guidelines for calculating the component. Some components may be used as placeholders “where there is currently a lack of capability to accurately quantify a particular category and/or a lack of cost or benefit to the Utility system.” Order 2015-194

at p. 20, para. (e), Ex. 1 at p. 4, para. 8. Placeholder categories are to be “updated and included in the calculation of costs and benefits of net metering if and when capabilities to reasonably quantify those values and quantifiable costs or benefits to the Utility system in such categories become available.” Id.

C. Recovery of PURPA Section 210 Avoided Costs under S.C. Code Ann. § 58-27-865

S.C. Code Ann. § 58-27-865 was amended by Act 236 to clarify that “ ‘fuel costs related to purchased power’, as used in subsection (A)(1) shall include ... avoided costs under the Public Utility Regulatory Policy Act of 1978, also known as PURPA.” S.C. Code Ann. § 58-27-865(A)(2) (Supp. 2015). Historically, SCE&G’s PURPA avoided cost rates have been filed in Commission Docket No. 1995-1192-E; however, subsequent to Act 236 and the fuel clause revisions, SCE&G is seeking approval in the fuel cost proceeding for its avoided cost rates and methodology under Section 210 of the Public Utility Regulatory Policies Act of 1978, 16 U.S.C.A. 824a-3. Section 210 of PURPA and relevant regulations promulgated by Federal Energy Regulatory Commission (“FERC”)² prescribe the responsibilities of the FERC and of state regulatory authorities, such as this Commission, relating to the development of cogeneration and small power production. Section 210 of PURPA requires the FERC to prescribe such rules as it determines necessary to encourage cogeneration and small power production, including rules requiring electric utilities to purchase electric power from, and to sell electric power to, cogeneration and small power production facilities. Under Section 210 of PURPA, cogeneration facilities and small power production facilities that meet certain standards

² FERC Stats. & Regs. 30,128 (1980) in Docket No. RM79-55 (Order No. 69), *see also* 45 Fed. Reg. 12,214 (1980).

can become “qualifying facilities” (“QFs”), and thus become eligible for the rates and exemptions established in accordance with Section 210 of PURPA.

Each electric utility is required under Section 210 of PURPA to offer to purchase available electric energy from cogeneration and small power production facilities that obtain QF status under Section 210 of PURPA. For such purchases, electric utilities are required to pay rates that are just and reasonable to the ratepayers of the utility, are in the public interest, and do not discriminate against cogenerators or small power producers. The FERC regulations require that the rates electric utilities pay to purchase electric energy and capacity from qualifying cogenerators and small power producers reflect the cost that the purchasing utility can avoid as a result of obtaining energy and capacity from these sources, rather than generating an equivalent amount of energy itself or purchasing the energy or capacity from other suppliers. FERC delegated the implementation of these rules to the State regulatory authorities. State commissions may implement these rules by the issuance of regulations, on a case-by-case basis, or by any other means reasonably designed to give effect to the FERC’s rules.

D. Consideration of Settlement Agreements

The Commission’s Settlement Policies and Procedures (revised June 13, 2006) includes the following on consideration of settlements:

When a settlement is presented to the Commission, the Commission will prescribe procedures appropriate to the nature of the settlement for the Commission’s consideration of the settlement ... [W]hen the settlement presents issues of significant implication for other utilities, customers or the public interest, the Commission will convene an evidentiary hearing to consider the reasonableness of the settlement and whether acceptance of the settlement is just, fair, and reasonable, in the public interest, or otherwise in accordance with law or regulatory policy. Approval of such settlements shall be based upon substantial evidence in the record.

The Commission's policy encourages resolution of matters by settlement, but also states that settlements must be supported by probative evidence and that "proponents of a proposed settlement carry the burden of showing that the settlement is reasonable, in the public interest, or otherwise in accordance with law or regulatory policy." The Commission independently reviews any settlement proposed to determine whether it meets this burden.

III. PROCEDURAL BACKGROUND

By letter dated October 12, 2016, the Commission Clerk's Office instructed the Company to publish a Notice of Hearing and Prefile Testimony Deadlines ("Notice") in newspapers of general circulation in the area affected by the Commission's annual review of the Company's fuel purchasing practices and policies on or before January 6, 2017. The letter also instructed the Company to furnish the Notice to each affected customer by U.S. Mail, or by electronic mail to customers who have agreed to receive notice by electronic mail, on or before January 6, 2017. On November 29, 2016, the Company filed with the Commission affidavits demonstrating that the Notice was duly published in accordance with instructions set forth in the Clerk's Office October 12, 2016 letter. On December 16, 2016, the Company filed with the Commission an affidavit demonstrating that the Notice was duly furnished to each affected customer in accordance with instructions set forth in the Clerk's Office October 12, 2016 letter.

Petitions to intervene were received from South Carolina Energy Users Committee ("SCEUC"); CMC Steel South Carolina ("CMC Steel"); South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE"); South Carolina Solar Business Alliance, LLC ("SBA"); and Southern Current,

LLC. The foregoing petitions to intervene were not opposed and were granted by the Commission. The South Carolina Office of Regulatory Staff (“ORS”) is automatically a party to this proceeding pursuant to S.C. Code Ann § 58-4-10(B).

The Commission convened a hearing on this matter on April 6, 2017, with the Honorable Swain E. Whitfield, Chairman, presiding. SCE&G was represented by K. Chad Burgess, Esquire, Matthew W. Gissendanner, Esquire, Mitchell Willoughby, Esquire, and Benjamin P. Mustian, Esquire . SCEUC was represented by Scott Elliott, Esquire. SBA was represented by Timothy J. Rogers, Esquire, and Benjamin L. Snowden, Esquire. Southern Current, LLC was represented by Richard L. Whitt, Esquire. CCL and SACE were represented by J. Blanding Holman, Esquire and Lauren Joy Bowen, Esquire. CMC Steel and its counsel of record did not appear at the hearing. Jeffrey M. Nelson, Esquire, and Andrew Bateman, Esquire represented ORS. In this Order, ORS, SCEUC, SBA, Southern Current, LLC, CCL, SACE, CMC Steel, and SCE&G are collectively referred to as the “Parties” or sometimes individually as a “Party.”

At the outset of the hearing, counsel for ORS presented a Settlement Agreement that was filed with the Commission on March 30, 2017. The signatories to the Settlement Agreement were SCE&G, SCEUC, and ORS (collectively, the “Settling Parties”). The Settlement Agreement was admitted into the record as Hearing Exhibit 1. CMC Steel was not a signatory to the Settlement Agreement, though it did not oppose the settlement agreement. CCL, SACE, SBA, and Southern Current, LLC were not signatories to the Settlement Agreement and contested certain issues that were addressed in the Settlement Agreement.

Through their personal appearances, SCE&G presented the testimonies of George Lippard III, Keith C. Coffey, Henry E. Delk, Jr., John S. Beier, Michael D. Shinn, John H. Raftery, Joseph M. Lynch, Ph.D., and Allen W. Rooks. Through his personal appearance, CCL and SACE presented the testimony of Thomas J. Vitolo, Ph.D. Through their personal appearances, SBA presented the testimony of Paul Fleury and Ben Johnson, Ph.D. Through their personal appearances, ORS presented the testimonies of Robert A. Lawyer and Brian Horii in a panel format. The testimony of ORS witness Willie J. Morgan and Gaby Smith were stipulated into the record.

SCE&G witnesses were presented in a panel format and their direct and rebuttal testimonies and exhibits were admitted into the record without objection. CCL and SACE witness's direct and surrebuttal testimony and exhibits were admitted into the record without objection. SBA's witnesses' direct and surrebuttal testimony and exhibits were admitted into the record without objection. ORS witnesses were presented in a panel format and their direct testimonies and exhibits were admitted into the record without objection. Each of the witnesses who testified by personal appearance presented summaries of their testimony and then were made available for cross examination and to respond to questions from the Commission.

IV. SETTLEMENT AGREEMENT

The Settlement Agreement filed with the Commission on March 30, 2017 and entered into the record in this case as Hearing Exhibit 1 included provisions related to (1) Avoided Costs, Net Energy Metering, and Distributed Energy Resource Programs; (2) Fuel Expenses and Power Plant Operations; (3) Fuel Factors; and (4) Other provisions, related to plant outages, monthly fuel cost reports, quarterly fuel factor forecasts.

V. FINDINGS OF FACT

1. The Company's proposals and the Settlement Agreement provisions related to Avoided Cost Tariffs PR-1 and PR-2 and the calculations used to determine the avoided cost rates were disputed in this proceeding.
2. The majority of projects potentially affected by the PR-1 and PR-2 rates in this proceeding will be solar photovoltaic projects ("solar projects").
3. Solar projects generate electricity during the day and do not generate electricity at night.
4. Solar projects generate electricity on a characteristic daily time profile that generally increases to a midday peak, and then decreases as the sun goes down.
5. For its Avoided Energy Calculations, it is possible and more accurate for the Company to calculate solar-specific avoided energy cost rates using a 100 MW solar photovoltaic generation profile, in addition to its 100 MW model run of constant demand reduction (the Company's "change case").
6. The Company's 2017 Integrated Resource Plan ("IRP") indicates that its reserve margin in 2019 will be 13.6%, which is 0.4% below its 14% reserve margin. SCE&G 2017 IRP at 38, line 15.
7. For its Avoided Capacity Calculations, the Company failed to include the 2019 generation capacity shortfall in its calculations.
8. The Company assigns a 50% firm summer capacity value to solar photovoltaic resources in its integrated resource plan. Other analyses show this value to be higher.

9. For its Avoided Capacity calculations, the Company failed to include a performance adjustment factor of 1.20.
10. For its Avoided Capacity calculations, the Company failed to account in its revenue requirement for the additional revenue the Company could collect by selling surplus capacity made possible by new qualifying facilities such as solar projects.
11. Data demonstrates that the Company's generation capacity split between summer and winter is closer to 95 percent summer and 5 percent winter, rather than 80 percent summer and 20 percent winter.
12. The Company's proposals and the Settlement Agreement provisions related to the Company's 2017 NEM Methodology calculation update and NEM Rider to Retail Rates were disputed in this proceeding.
13. The Company's calculation of NEM Methodology values for avoided energy and avoided capacity are impacted by its calculations of avoided energy and avoided capacity calculations pursuant to PURPA and its PR-1 and PR-2 tariffs.
14. The NEM Methodology category of avoided transmission and distribution is capable of quantification at this time.
15. The NEM Methodology category of avoided environmental costs is capable of quantification at this time.
16. For Avoided Line Losses calculations, it is possible and appropriate for the Company to use marginal line losses weighted to a solar photovoltaic profile.

17. For Avoided Line Losses calculations, it is possible and appropriate for the Company to calculate marginal transmission line losses as double the average line loss, as with distribution line losses.
18. For Avoided Line Losses calculations, it is possible and appropriate for the Company to gross up avoided generation and transmission capacity calculations assigned to distribution-level DERs, including QFs, to reflect the avoided generation and transmission capacity otherwise needed to overcome line losses.
19. For Avoided Line Losses calculations, it is possible and appropriate for the Company to account for avoidance of 14 percent reserve margin assigned to generation capacity in calculating avoided line losses.
20. The Settlement Agreement provisions related to the Company's fuel purchasing practices and cost recovery for the Review Period were undisputed.
21. The Settlement Agreement provisions related to the Company's DERP cost recovery for the Review Period were undisputed.
22. The Settlement Agreement provisions related to the Company's Tariff sheet entitled "Adjustment for Fuel and Variable Environmental Costs" were undisputed.

VI. REVIEW OF EVIDENCE AND EVIDENTIARY CONCLUSIONS

The parties presented evidence on the following topics: calculation of avoided costs, the 2017 distributed energy resource valuation update, distributed energy resource program cost recovery, and fuel cost recovery.

A. AVOIDED COSTS

a. SCE&G Testimony

SCE&G Witness Lynch testified to the Company's methodology for calculating the long-run avoided costs for power purchases under PURPA, the results of which are set out in revisions to PR-2 as proposed by the Company. Witness Lynch also described the Company's update to its short-run avoided costs, set out in revised PR-1 as proposed by the Company. Avoided costs refer to the "incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source." Lynch Direct Testimony at 3 (citing 18 C.F.R. § 292.101(b)(6)). Witness Lynch testified on cross examination that the majority of qualifying facilities under PURPA in the Company's territory for the near future are expected to be solar photovoltaic projects.

Witness Lynch explained that the Company uses the Difference in Revenue Requirements ("DRR") method to determine the long-run avoided costs of the Company over its 15-year Integrated Resource Plan ("IRP"). The DRR method involves comparing the Company's revenue requirements between a base case and a change case. The base case is defined by SCE&G's "existing fleet of generators and the hourly load profile to be supplied by these generators." Lynch Direct Testimony at 4. "The change case is the

same as the base case except that the hourly loads are reduced by 100 megawatts (“MW”) in each hour... .” Lynch Direct Testimony at 4-5.

Witness Lynch explained the Company’s approach to calculating avoided energy. The Company calculates the change in production costs between the base case and the change case using PROSYM, a computer program that models the “commitment of generating units to serve load hour-by-hour over the course of the 15-year IRP planning horizon.” Lynch Direct Testimony at 5. The avoided energy costs are then “accumulated into four time-of-use periods” for on-peak and off-peak seasons and on- and off-peak hours. Lynch Direct Testimony at 5. The PROSYM results are adjusted for line losses, working capital impacts, gross receipts taxes, and generation taxes. Lynch Direct Testimony at 6. The Company’s long-run avoided costs are calculated over the 15-year planning horizon from 2017 to 2031. Lynch Direct Testimony at 6. The Company’s short-run avoided costs are calculated for the period between May 2017 through April 2018.

Witness Lynch further explained the Company’s approach to calculating avoided capacity costs under the DRR method. The Company uses the resource plan from its latest IRP or an updated resource plan to “calculate the incremental capital investment related revenue required to support the existing resource plan.” Lynch Direct Testimony at 8. The Company then “develops a changed resources plan based on the assumption of a 100 MW capacity purchase at zero cost over the 15-year IRP planning horizon.” Lynch Direct Testimony at 8. The Company then adjusts for line losses, working capital impacts, and gross receipts taxes. The change in revenue requirements over the 15-year planning horizon is stated as an average cost per kilowatt (“kW”) year; 80% of this value

is then allocated to the summer period and 20% is allocated to the winter period. Lynch Direct Testimony at 8.

As described by Witness Lynch, the Company's long-run avoided cost rates dropped approximately 70% from 2016 to 2017. The avoided capacity rates proposed for this proceeding are \$6.35 per kW-year. This is compared to \$21.34 per kW-year approved by the Commission in 2016. As explained by Witness Lynch, the Company attributes this decrease in the avoided capacity rates paid to qualifying facilities to decreases in the amount of avoidable capacity in its 2017 resource plan. Witness Lynch described the changes in the 2017 IRP that have reduced the Company's proposed avoided capacity rates: the 2017 IRP shows the need for only one additional combustion turbine in 2031, rather than one in 2029 and one in 2030; capacity purchases for 2018 and 2019 have already been made and are therefore no longer avoidable; and this year's IRP has 320 MWs of solar capacity under Purchase Power Agreements ("PPAs") rather than 278 MWs in the 2016 IRP. Witness Lynch testified on cross examination that the 2017 IRP relied upon by the Company for its DRR calculations of avoided costs was not submitted to the Commission for review and public comment until after the proposed Avoided Cost rates were submitted in this proceeding. Witness Lynch also testified that the 2017 IRP reports a firm capacity value of solar power at 50% for summer peaks. On cross examination, Witness Lynch further testified that changes to the Company's plans for its V.C. Summer Nuclear Plants in the wake of the Westinghouse bankruptcy could impact its avoided cost rates. In particular, delaying or canceling plans for the units would impact the Company's DRR calculations and resulting avoided cost rates.

SCE&G Witness Allen W. Rooks asks in his direct testimony that the Commission approve the Company's proposed updates to its PR-1 and PR-2 Riders.

b. SBA Testimony

SBA Witness Ben Johnson, Ph.D. testified that SCE&G is proposing unreasonably low avoided cost rates for QFs which will not advance the interests of retail ratepayers or the public interest. He recommended that the Commission reject the Company's proposed avoided cost rates, because they will not adequately compensate QF's, they will not encourage small power production within SCE&G's service area, and they will not adequately achieve the goals of PURPA. Instead, he recommended the Commission require the Company to collaboratively work with ORS and other interested parties to develop higher, more accurate QF rates. According to Witness Johnson, this can be accomplished by modifying the inputs and assumptions used in the Company's DRR analysis, to more accurately analyze and minimize the revenue requirements under each scenario. In the alternative, Witness Johnson recommended that the Commission adopt QF rates in this proceeding closer to those approved for Duke Energy Carolinas and Duke Energy Progress, as well as the long run incremental cost of building and owning a new generating unit, based upon the benchmark avoided cost information he provided in his written testimony.

Witness Johnson's extensive pre-filed testimony with the Commission addressed a number of issues in detail, including: rate comparisons between the Company's proposed avoided cost rates and those previously approved by the Commission for SCE&G and for Duke Energy; a discussion of PURPA requirements; and methodologies for estimating avoided costs. His testimony also includes independently developed

estimates of the Company's long run avoided capacity costs and energy costs; and comparisons between the Company's proposed rates and the independently developed estimates.

Finally, Witness Johnson makes recommendations for Commission action in the proceeding. Specifically, he recommends that the Commission reject the Company's proposed PR-1 and PR-2 rates as unreasonably low QF rates "which will not advance the interests of retail ratepayers or the public interest." Johnson Direct at 93. Witness Johnson asserts, based on his testimony, that these rates will also "not adequately compensate QF's, ...will not encourage small power production within SCE&G's service area, and ... will not adequately achieve the goals of PURPA." Id. Witness Johnson recommends that the Commission reject these rates and instead require the Company, ORS, and other parties to develop higher, more accurate QF rates, which "could be accomplished by modifying the inputs and assumptions used in the DRR analysis, to more accurately analyze and minimize the revenue requirements under each scenario." Id. In the alternative, Witness Johnson recommends that the Commission adopt rates that are more closely aligned to those offered by Duke Energy Carolinas and Duke Energy Progress and to those resulting from Witness Johnson's independent analysis of SCE&G's avoided cost rates.

c. CCL and SACE Testimony

CCL and SACE Witness Thomas Vitolo, Ph.D. testified regarding shortcomings in SCE&G's avoided cost calculations offered to qualifying facilities or QFs under PURPA. According to Witness Vitolo, the Company's calculations fail to capture the

actual avoided cost value of solar photovoltaic facilities, which are forecast to make up the vast majority of QFs for the foreseeable future.

For avoided energy calculations, Witness Vitolo testified that the Company should revise its change case resource model run to use a 100 MW solar photovoltaic (“PV”) profile, in addition to its generic profile with a constant output. This approach would more accurately capture the avoided energy value of solar photovoltaic resources on the Company’s system.

Witness Vitolo also recommended changes to the Company’s calculation of avoided capacity. According to Witness Vitolo, SCE&G artificially limited the future generation capacity projects or contracts that could be deferred or avoided by QFs; failed to include opportunity costs in its revenue requirements calculations; used an erroneous method to determine the appropriate generation capacity payment split between summer and winter seasons; and failed to include a performance adjustment factor. These problems yield an avoided capacity value that is too low.

Witness Vitolo asserts that the Company should correct its avoided capacity calculations to include a generation capacity shortfall in its Integrated Resource Plan for the year 2019. Witness Vitolo also recommends that to the extent that the Westinghouse bankruptcy and other recent challenges with the V.C. Summer construction project jeopardize a May 2020 online date, the Company should include generation capacity shortfalls in 2020 and beyond.

Witness Vitolo testified that the Company has not, but should, account for opportunity costs in its revenue requirements calculations, which would reflect the value the Company could collect in additional revenue by selling marginal surplus generation

capacity contracts as enabled by additional renewable energy resources on the system. Failing to account for these opportunity costs, artificially depresses the value of avoided capacity according to Witness Vitolo.

The third recommendation on avoided capacity calculations by Witness Vitolo was for the Company to revise its summer and winter generation capacity split to reflect a 95 percent summer and 5 percent winter split. Witness Vitolo split on the basis of a review of the actual number of peak hours that have occurred in recent years in the winter and summer periods. Witness Vitolo asserts that basing avoided cost capacity rates on the actual split between summer and winter peak hours will produce more accurate avoided cost rates.

Finally, Witness Vitolo recommends that the Company include a performance adjustment factor (“PAF”) of 1.20, which correlates to availability of the QF resources of approximately 83.3 percent. According to Witness Vitolo, the PAF ensures that a QF resource is treated in a nondiscriminatory manner when compared to utility-owned resources. Utility-owned resources are considered “used and useful” despite their occasional downtime or failure to deliver energy or capacity when called upon.

d. ORS Testimony

Witness Brian Horii testified on behalf of ORS related to the Company’s avoided cost calculations. ORS retained Brian from E3 consulting to review the following:

- 1) Verify the Company is using the avoided cost methodology approved by the Commission;
- 2) Confirm the methodology meets the Public Utility Regulatory Policies Act of 1978 (“PURPA”) Requirements; and
- 3) Verify the avoided cost rates requested by SCE&G in this Docket are a reasonable result of the approved avoided cost methodology.

Witness Horii provided an overview of PURPA and a description of the Company's DRR approach to calculating avoided costs. Witness Horii testified that the Company's methodology for calculating avoided costs was consistent with the methodology previously approved by the Commission in Commission Order No. 2016-297.

Witness Horii determined that there were not significant changes made to SCE&G's avoided energy model inputs between 2016 and 2017 and the primary difference in avoided energy costs were due to the difference in fuel forecasts between 2016 and 2017. He determined that the avoided energy costs presented by the Company were a reasonable and consistent result of the methodology used by SCE&G.

For avoided capacity costs, Witness Horii testified that the Company "continues to use the approved DRR method to evaluate the impact of a 100 MW load change that persists for fifteen (15) years, but changes in the input assumptions have resulted in the substantial reduction of avoided capacity costs." Horii Direct at 7. E3 reviewed the changed inputs by the Company and Witness Horii testified that the majority of the capacity cost reduction for 2017 was "due to: 1) the reduction in the amount of avoidable power purchase contracts and 2) the change in the number of CTs in the IRP base case expansion plan." Horii Direct at 7-8. Witness Horii concluded that the changes in inputs and methodology used by the Company were appropriate and consistent with the methodology approved by the Commission in Order No. 2016-297.

On cross examination, Witness Horii testified that he was aware of other jurisdictions in which utilities calculated solar-specific avoided cost rates and that it would be possible for SCE&G to also offer a resource-specific avoided cost rate if it chose to. Witness Horii also testified that in his review of SCE&G's avoided cost rates, he did not put any specific values on the potential capacity value of SCE&G's selling excess power. Witness Horii also testified on cross examination that he did not consider the potential impact of V.C. Summer nuclear unit delays on the Company's avoided cost rates.

e. The Commission's Conclusions Regarding Avoided Costs

The Company's avoided costs proposed in this docket are not just and reasonable, and must be revised prior to approval. The Company has used the DRR method to calculate its avoided cost available to QFs, like solar projects, through its PR-1 and PR-2 rates. The DRR method is dependent on the Company's latest Integrated Resource Plan or updated resource plan, the latest of which is currently under consideration by the Commission and may be impacted significantly by the recent Westinghouse bankruptcy and uncertainty around the planned new V.C. Summer nuclear units.

SBA Witness Johnson points out that the rates proposed are significantly lower than those offered by Duke Energy Carolinas and Duke Energy Progress, as well as lower than rates offered last year, and those resulting from Dr. Johnson's independent analysis and estimates of the Company's avoided costs. CCL and SACE Witness Vitolo further points to a number of errors and omissions within the Company's approach to its avoided capacity calculations in particular, including artificially limiting the future generation capacity projects or contracts that could be deferred or avoided by QFs; failing to account

for opportunity costs; using an erroneous method to determine the appropriate generation capacity payment split between summer and winter seasons; and failing to include a performance adjustment factor. As demonstrated in Witness Vitolo and Witness Johnson's testimony, these errors and omissions yield an avoided capacity value that is too low. The Commission agrees that the problems and considerations pointed out by Witness Vitolo and Witness Johnson should be addressed prior to the Commission approving new avoided cost rates in PR-1 and PR-2.

With regard to avoided energy calculations, the Commission finds, on the basis of substantial and uncontroverted evidence in this docket, that the majority of QFs coming online in SCE&G territory in the near future are likely to be solar photovoltaic resources. The Commission therefore determines that the use of a solar-specific avoided cost rate and generation profile for calculation of avoided energy are appropriate at this time.

B. 2017 UPDATE TO NEM METHODOLOGY CALCULATIONS

a. SCE&G Testimony

SCE&G Witness Joseph Lynch, Ph.D. provided in his testimony updated values for the Company's 2017 update to the Net Energy Metering or NEM Methodology for valuing the costs and benefits of Distributed Energy Resources ("DERs"). For the DER value for the current period, Witness Lynch provided values for the following three categories (out of eleven within the NEM Methodology): avoided energy costs, avoided criteria pollutants, and an adjustment for line losses. For the DER value for the IRP Planning Horizon (15-year levelized), Witness Lynch provided values for the following four categories (out of eleven within the NEM Methodology): avoided energy costs,

avoided capacity costs, avoided criteria pollutants, and an adjustment for line losses. The avoided energy and capacity values were lowered for 2017, reflecting the Company's proposed avoided energy and capacity costs under PURPA, which were lower than in 2016.

The Company proposed zero values for several categories within its 2017 update. For ancillary services, Witness Lynch asserted that there would be some increased costs to providing ancillary services as larger amounts of solar energy come online, but that for now the relatively small amount of NEM DERs do not warrant a non-zero value for this category. For avoided transmission and distribution capacity, Witness Lynch asserted that NEM DERs do not avoid transmission or distribution capacity and therefore the value of this component should be zero. For avoided CO₂ pollutants, Witness Lynch sets the value at zero until state or federal laws or regulations result in an avoidable cost on utility systems for these emissions. For fuel hedge, Witness Lynch states that the company does not hedge fuels for electric generation so this value is zero. For utility administrative costs, Witness Lynch explains that those costs are currently being collected by the Company through a DER rider, so this value is zero for purposes of the NEM Methodology. For environmental costs, Witness Lynch asserts that there are no environmental costs not already included in other specific components of the Methodology.

SCE&G Witness Allen W. Rooks asks in his direct testimony that the Commission approve the Company's proposed updates to its NEM Rider.

b. SBA Testimony

SBA did not provide testimony specifically related to the Company's 2017 update to the NEM Methodology Calculations.

c. CCL and SACE Testimony

CCL and SACE Witness Thomas Vitolo, Ph.D. provided input through testimony on the Company's 2017 of the Net Energy Metering or NEM Methodology for valuing the costs and benefits of DERs. He specifically recommended that the Company make further progress in filling out and applying the NEM Methodology previously approved by the Commission, and he disagreed that some of the values should be zero as proposed by the Company.

Witness Vitolo noted that the recommendations made for the Company's avoided cost calculations under PURPA influenced the Company's avoided energy and capacity rates in the NEM Methodology and should be corrected accordingly to fully account for the value of solar photovoltaic resources, which are expected to make up the vast majority of DERs in South Carolina for the near future.

Witness Vitolo also testified that avoided transmission and distribution ("T&D") value of DERs is one example of a category in the NEM Methodology that is readily quantifiable and is done so in other proceedings. The avoided T&D component refers to DER's contribution to deferring or avoided the addition of transmission and/or distribution capacity resources needed to serve load. Witness Vitolo testified that the Company can and should include a non-zero value for avoided T&D in this year's annual update to the NEM Methodology application. His testimony emphasized that in the aggregate and over time, DERs reduce the need for T&D capacity investments. "If the DER alleviates some of the strain on the system during transmission or distribution

system peaks, then that resource does, in fact, reduce pressure on the system and therefore helps defer or avoid future upgrades to that system.” Vitolo Direct at 20-21. For comparison, Witness Vitolo provided numerical examples of avoided T&D values that were the result of a survey of avoided costs of T&D for use in energy efficiency program screening and pointed to other jurisdictions that have value of solar studies including avoided T&D values. He noted that most of the avoided T&D values are between \$25 and \$75 per kW-year. Witness Vitolo also provided in testimony descriptions of different approaches to calculating avoided T&D values from other jurisdictions. Witness Vitolo notes that these examples show that avoided T&D is a category within the NEM Methodology that is “quantifiable” at this time, and should thus be included in the Company’s NEM Methodology application. In his discussion of avoided T&D capacity, Witness Vitolo also notes that the Company’s 2017 IRP indicates that the amount of firm solar capacity expected to be available on the system peak hour is 50 percent, and he includes as an exhibit an analysis showing this value to be even higher at 66 percent.

Witness Vitolo also testified that he disagreed with the Company’s conclusion that “at present, there are no environmental costs that are not already included in other specific components of the methodology.” Vitolo Direct at 29. Witness Vitolo provided the example of compliance with federal rules regulating coal combustion residuals. Witness Vitolo asserted that DERs can help to avoid those costs and that those costs are “financial, quantifiable, and a direct result of DER generation” and such savings should be reflected in the NEM Methodology Application.

Finally, Witness Vitolo testified that there are a number of corrections the Company should make to its avoided line loss calculations. Witness Vitolo made the following specific recommendations:

1. SCE&G should not use straight average annual line losses, but instead use average annual T&D losses weighed to a PV profile to account for solar PV output's correlation with higher load, and therefore higher losses.
2. SCE&G should recognize that marginal transmission line losses, like marginal distribution line losses, are double the average line loss.
3. SCE&G should gross up avoided generation and transmission capacity calculations assigned to distribution-level DERs and QFs to reflect the avoided generation and transmission capacity otherwise needed to overcome line losses.
4. SCE&G should recognize that, in addition to the avoided generation and transmission capacity associated with overcoming line losses, the associated 14 percent reserve margin assigned to the generation capacity is also avoided. As such, that too should be reflected in avoided generation capacity calculations assigned to distribution-level DER and QF resources.

Vitolo Direct at 29.

d. ORS Testimony

ORS Witness Robert Lawyer testified about the Company's DERP costs, related to the Company's NEM Methodology update.

e. The Commission's Conclusions Regarding 2017 Update to DER Valuation

The NEM Settlement Agreement approved previously by this Commission in Order No. 2015-194, Docket No. 2014-246-E, states that the Company shall compute and update annually the "costs and benefits of net metering and the required amount of the DER NEM Incentive" coincident in time with the Utility's filing under the fuel clause. Order 2015-194 at p. 22, para. (g). The NEM Methodology includes 11 components, including but not limited to "T&D Capacity" and "Environmental Costs." The Company is authorized to use placeholders for some categories "where there is currently a lack of

capability to accurately quantify a particular category and/or a lack of cost or benefit to the Utility system.” Order 2015-194 at p. 20, para. (e), Ex. 1 at p. 4, para. 8. Placeholder categories are to be “updated and included in the calculation of costs and benefits of net metering if and when capabilities to reasonably quantify those values and quantifiable costs or benefits to the Utility system in such categories become available.” Id.

The Company asserts that avoided T&D is not capable of quantification at this time; however, Witness Vitolo provided in his testimony numerous examples of avoided T&D values that have been used in other contexts and jurisdictions. Based on these examples, the Commission finds that avoided T&D capacity is reasonably able to be calculated at this time and should be included in the Company’s 2017 NEM Methodology application update.

To the extent that avoided environmental costs are quantifiable and are not already included in the Company’s calculations, those should be included. Witness Lynch testified for the Company that any avoided environmental costs are already included in the avoided energy component of the Company’s calculations. If so, this value should be broken out separately in accordance with the NEM Settlement Agreement. However, if environmental costs are avoided by DERs, such as the avoidance of managing additional coal combustion residual as noted by Witness Vitolo, that value should be included.

Finally, the Commission determines that Witness Vitolo’s recommendations for improving the Company’s avoided line loss calculations should also be taken into account and incorporated by the Company.

C. FUEL COST RECOVERY

a. SCE&G Testimony

SCE&G Witness Henry E. Delk Jr. testified as to the operating performance of the Company's Fossil Hydro units and South Carolina Generating Company's Williams Electric Generating Station during the Review Period from January 1 to December 31, 2016. SCE&G Witness John S. Beier testified as to the Company's natural gas purchasing process for generation and natural gas prices for the Review Period and the near-term outlook going forward. Witness Beier requested that Commission find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

SCE&G Witness Allen W. Rooks testified to the Company's currently approved electric fuel cost factors; the actual and projected data on Base Fuel Costs and Collection for the period January 1, 2016 through April 30, 2018, and the actual and projected data on Variable Environmental & Avoided Capacity Costs and Collection for the period January 1, 2016, through April 30, 2018. Witness Rooks also provided in testimony the Company's proposed Base Fuel, Variable Environmental & Avoided Capacity, and Total Fuel Cost Factors for retail electric customers for the period May 2017 through April 2018. In addition to providing and explaining this data in testimony, Witness Rooks requested Commission approval in his testimony for the Company's tariff sheet entitled "Adjustment for Fuel, Variable Environmental & Avoided Capacity, and Distributed energy Resource Costs," attached as Exhibit AWR-12 to his testimony. Witness Rooks also sought approval for the Company's proposed fuel factors and a determination that during the review period the Company's fuel purchasing practices, plant operations, and fuel inventory management were reasonable and prudent.

SCE&G Witness Michael D. Shinn testified to the Company's procurement and delivery activities for coal and No. 2 fuel oil used in electric generation for SCE&G and GENCO's Williams Station for the period January 1 to December 31, 2016. Witness Shinn also described changes in the coal markets since the 2016 fuel cost proceeding and how those changes have affected the Company's fuel procurement. Witness Shinn further testifies to the procurement of limestone and nuclear fuel for the Company. Witness Shinn requests that the Commission find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

SCE&G Witness George A. Lippard provided in his testimony a review of the operating performance of the V.C. Summer Nuclear plant for the Review Period, from January 1 to December 31, 2016.

Finally, SCE&G Witness Keith C. Coffey explained in testimony the Company's election to "claim significant research and experimentation ("R&E") deductions pursuant to Section 174 ("Section 174 Deductions") of the Internal Revenue Code, the resulting effect on the Company's Accumulated Deferred Income Tax ("ADIT") liabilities and the Company's proposal to reduce its variable environmental and avoided capacity cost component ("Environmental Component") of its total fuel cost factor to pass the benefits of these Section 174 Deductions and related increased ADIT liability to customers in an effective and efficient manner." Coffey Direct at 2-3. Witness Coffey's testimony requests that the Commission authorize the Company to reduce its Environmental Component of its fuel cost factor and a reduction in its 2017 Base Load Review Act revised rates to reflect this tax election.

b. SBA Testimony

SBA did not provide testimony specifically related to the Company's fuel cost recovery requests.

c. CCL and SACE Testimony

CCL and SACE did not provide testimony specifically related to the Company's fuel cost recovery requests.

d. ORS Testimony

ORS Witness Gaby Smith presented the results of ORS Audit Staff's review of the Company's books and records related to its operations under the Fuel Adjustment Clause. Witness Smith testified as to the different components of ORS's audit review of the Company's accounting practices and provided relevant audit exhibits. ORS found that SCE&G complied with S.C. Code Ann. § 58-27-865 and agreed with the Company's fuel cost components.

ORS Witness Willie J. Morgan presented testimony "set[ting] forth ORS's recommendations resulting from [its] examination and review of [SCE&G's] fuel expenses and power plant operations used in the generation of electricity to meet the Company's retail customer requirements during the review period." Morgan Direct at 2. The review period included the actual data for January 2016 through December 2016 ("Actual Period"), estimated data for January 2017 through April 2017 ("Estimated Period"), and forecasted data for May 2017 through April 2018 ("Forecasted Period"). According to Witness Morgan, ORS reviewed the Company's monthly fuel reports; outage and maintenance activities; contracts for nuclear fuel, coal, natural gas, fuel oil, transportation, and environmental reagents; and the company's fuel procurement policies.

Witness Morgan testified that ORS found the Company's operation of its generation facilities during the Actual Period to be reasonable efforts to maximize unit availability and minimize fuel costs.

Witness Morgan testified that ORS determined that the "Company's request for a rate increase was driven primarily by projected increases in both delivered coal and natural gas during the forecasted period." Morgan Direct at 6. Witness Morgan further provided the following recommendation from ORS on changes to SCE&G's proposed rates across its Fuel Adjustment and DERP Charge proceedings (in this docket), the Annual Update on Demand Side Management Programs and Petition to Update Rate Rider (Docket No. 2017-35-E), and the Request of South Carolina Electric & Gas Company to Decrease Its Rate Rider Related to Pension Costs from \$0.00087 to \$0.00033 Per Kilowatt Hour (Docket No. 2017-56-E): "ORS recommends adjusting the proposed Base Fuel Component so that the net effect across [three currently pending] proceedings results in a \$0.00 or 0.00% increase to the residential customer." Morgan Direct at 8.

Finally, Witness Morgan testified that ORS supported the Company's effort to defer income tax liability in the manner proposed by Company Witness Coffey.

e. The Commission's Conclusions Regarding Fuel Cost Recovery

The settlement agreement provisions regarding fuel cost recovery were not contested by parties in the docket and were supported by substantial testimony in the record. The Commission approves the Company's fuel purchasing practices and cost recovery for the Review Period. The Commission further approves the c. The

Company's Tariff sheet entitled "Adjustment for Fuel and Variable Environmental Costs."

D. DERP RECOVERY AND DER PROGRAM REVISIONS

a. SCE&G Testimony

Witness Allen W. Rooks testified to the actual and projected data on Distributed Energy Resource Avoided and Incremental Costs and Collection for the period from January 1, 2016 through April 30, 2018. Witness Rooks also presented the Company's proposed DER Avoided and Incremental fuel cost factors for retail electric customers for the period May 2017 through April 2018.

SCE&G Witness John Raftery testified to the performance and costs associated with SCE&G's Distributed Energy Resources ("DER") programs during the review period of January 1 through December 31, 2016. He also provided projects for DER program costs for the forecast period from January 1, 2017 to April 30, 2018. Witness Raftery also describes the proposed changes to the Company's DER programs, including suspending its Bill Credit Agreement ("BCA") program and providing a Community Solar subscription option to all eligible customers, not just eligible low-income customers. Witness Raftery requests in his testimony that the Commission approve the Company's costs incurred in providing DER programs during the Review Period as reasonable and prudent and that the Commission approve its proposed DER program changes.

b. SBA Testimony

SBA presented the testimony of Paul Fleury, who did not testify on the DERP cost recovery specifically, but did provide testimony on the implementation of the

Company's DER programs and the DERP performance. Witness Fleury described some of the differences between SCE&G's net metering program and its bill credit agreement program, including different forms of available financing and considerations taken into account by residential customers as compared to commercial or industrial customers that are interested in the BCA program. Witness Fleury makes a recommendation that the Company accept BCA applications through the end of 2017. He also recommends that the remaining Act 236 customer scale capacity goal be allocated to commercial projects under the BCA program.

c. CCL and SACE Testimony

CCL and SACE did not provide testimony specifically related to the Company's DERP cost recovery requests or DER program revisions.

d. ORS Testimony

ORS Witness Robert Lawyer testified about the Company's DERP costs and proposals to suspend the BCA program and modify its community solar program. Witness Lawyer reviewed the Company's DERP actual and forecasted costs between January 2016 through April 2018. Witness Lawyer provided in testimony a breakdown of the DERP costs and charges per account. Witness Lawyer testified that the "Company's calculations are in compliance with the Distributed Energy Resource Program Act and with the Commission's orders in previous DERP-related proceedings." Lawyer Direct at 5. Witness Lawyer further testified that ORS reviewed the Company's proposal to suspend the BCA program and found it to be reasonable. Finally, Witness Lawyer testified that ORS reviewed the Company's proposal to modify its Community

Solar program to offer all eligible customers a subscription based model previously only available to eligible low-income customers. ORS found this request to be reasonable.

e. The Commission's Conclusions Regarding DERP Recovery and DER Program Revisions

The settlement agreement provisions regarding DERP cost recovery were not contested by parties in the docket and were supported by substantial testimony in the record. The Commission approves the Company's DERP expenses for the Review Period. The Company's proposal to modify its Community Solar program to offer subscriptions was not contested and supported by the Company's testimony, and the Commission approves this proposal. The proposal to suspend the BCA program was contested by SBA, which provided testimony of Paul Fleury who requested the extension of the BCA program through the end of 2017 based on differences between residential and commercial customers' approach to the DER programs. The Commission finds good cause to extend the BCA program through the end of 2017 before it is suspended.

VII. CONCLUSIONS OF LAW

After hearing the evidence and testimony of the witnesses and reviewing the Settlement Agreement, the Commission finds and concludes that SCE&G's requests pursuant to S.C. Code Ann. § 58-27-865 and PURPA Section 210 regarding its avoided cost rates offered in PR-1 and PR-2 and its 2017 NEM Methodology calculation update are not reasonable or prudent as proposed, given the evidence introduced by CCL and SACE in the expert testimony of Thomas J. Vitolo, Ph.D. and evidence introduced by SBA witness Ben Johnson, Ph.D. SCE&G's fuel cost recovery and DERP cost recovery may be approved as reasonable and prudent if subject to certain conditions specifically

relating to the Company's calculations of Avoided Costs under PURPA, its application of the NEM Methodology approved in Commission Order No. 2015-194.

IT IS THEREFORE ORDERED THAT:

1. The following are approved:
 - a. The Company's fuel purchasing practices and cost recovery for the Review Period;
 - b. The Company's DERP expenses for the Review Period;
 - c. The Company's Tariff sheet entitled "Adjustment for Fuel and Variable Environmental Costs";
2. The following are not approved as proposed by the Company, and are subject to conditions in Ordering paragraphs 3-4 below:
 - a. The Company's Avoided Cost Tariffs PR-1 and PR-2; and
 - b. The Company's 2017 NEM Rider to Retail Rates.
3. The Company shall make the following revisions to its Avoided Cost methodology and calculations pursuant to PURPA, and shall file within 90 days of this order revised PR-1 and PR-2 tariffs with rates reflecting such changes. Any fuel clause adjustments needed to account for such changes will be made in the 2018 fuel clause proceeding.
 - a. For its Avoided Energy Calculations, the Company shall calculate solar-specific avoided energy cost rates using a 100 MW solar photovoltaic generation profile, in addition to its 100 MW model run of constant demand reduction (the Company's "change case").

- b. For its Avoided Capacity Calculations, the Company shall:
 - i. Include the 2019 generation capacity shortfall in its calculations;
 - ii. Include a performance adjustment factor of 1.20;
 - iii. Include the additional revenue the Company would collect by selling marginal surplus generation capacity contracts made possible by the new qualifying facilities in the revenue requirement calculation;
 - iv. Revise the generation capacity payment split between summer and winter 95 percent summer and 5 percent winter;
 - v. Make any other adjustments needed to reflect changes to the Company's long-term resource plan since the filing of proposed PR-1 and PR-2 rates in this proceeding.
- 4. The Company shall make the following revisions to its 2017 NEM Methodology Calculation update, and shall file within 90 days of this order revised 2017 NEM tariff reflecting such changes. Any fuel clause or DERP cost recovery adjustments needed to account for such changes will be made in the 2018 fuel clause proceeding.
 - a. The Company shall incorporate into its 2017 NEM Methodology Application the changes required to its PURPA Avoided Cost Calculations for avoided energy and avoided capacity as established above in Ordering Paragraph 3.
 - b. For its Avoided Line Losses calculations, the Company shall:

- i. Use average annual transmission and distribution line losses weighed to a solar photovoltaic profile;
 - ii. Calculate marginal transmission line losses as double the average line loss, as with distribution line losses;
 - iii. Gross up avoided generation and transmission capacity calculations assigned to distribution-level DERs, including QFs, to reflect the avoided generation and transmission capacity otherwise needed to overcome line losses; and
 - iv. Account for avoidance of 14 percent reserve margin assigned to generation capacity in calculating avoided line losses.
- c. The Company shall include in its 2017 NEM Methodology application a non-zero value for the Avoided Transmission and Distribution cost component of the NEM Methodology approved in Commission Order 2015-194.
- d. The Company shall evaluate and include in either its 2017 NEM Methodology application or its 2018 NEM Methodology application a non-zero value or estimate for the Avoided Environmental cost component of the NEM Methodology approved in Commission Order 2015-194.
5. The Company shall continue to offer its BCA DER program through the end of 2017.
6. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:

Swain E. Whitfield, Chairman

ATTEST:

Comer H. Randall, Vice Chairman